THE MOTOR AGE

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MOTOR VEHICLES IN THE FAR WEST

DESCRIPTION OF THE POSSIBILITIES FOR MOTOR VEHICLES IN THE MINING REGIONS —THE REQUIREMENTS BEING CHIEFLY CAPACITY FOR LONG HAUL WITH SMALL CONSUMPTION OF WATER.—AN UNLIMITED FIELD FOR GASOLENE VEHICLES REQUIRING NO RENEWAL OF COOLING WATER OR STEAM WAGONS WITH CONDENSERS.

The slow-speed motor vehicle, designed for utility purposes, to the possibilities of which The Motor Age is constantly drawing attention in the belief that it will prove fully as well adapted for American commercial conditions as the high-speed pleasure vehicle developed in France, possesses points that should recommend it highly for all beginners in the industry. It requires an excellent and reliable motor, to be sure, but as a rule not a motor of great power, and, above all, the motor and running gear may be designed for almost uniform loads and uniform speed, and it will not detract very much from its usefulness and value if it shows minor shortcomings at other loads and other speeds.

The field which exists for wagons of this class in the mountain regions of the West, where high-speed is indeed impracticable, is interestingly described by an unusually well-informed correspondent to the Indianapolis Sentinel.

Staging and Freighting Increasing

There is a great field in the trans-rocky mountain country for the introduction of the automobile, says this writer. In no other region of America is the horseless wagon of so great a necessity. Thirty years ago it was thought cheap and safe transportation in the desert regions of the West had been solved by the introduction of camels in Arizona, Nevada and Idaho, but the utter failure of that enterprise has left immense regions in the arid belt almost terra incognita.

There is more mileage of staging and freighting to-day in the West than in any year of the "good old stage days," as old timers say. This statement may appear surprising, but any one who will investigate will satisfy himself that it is correct. Of course, the great stage routes of old which have been replaced by the rail are not to be found now. By reason of the long journeys which travelers had to make, without interruption, moving on day and night by relay of horses, the old stage coach had to be substantially built, heavy and inclosed. Expert drivers had to be employed to handle these cumbersome vehicles in taking them through dangerous mountain passes and through Indian-infested plains. These ancient knights of the whip whom Harte sung into history have passed away. In the place of the old, upholstered coach hung on leathered springs the more light and less dangerous spring wagon, covered with canvas, when necessary, but opened in fair weather, is used, and the driver is a prosaic ranch hand, who handles a two-bit whip, and the solid silver handle whip with jeweled settings of the stage driver of the sixties is only found in museums now. But, while the long relay stage lines have mostly disappeared, the short routes have multiplied with the introduction of the railroads to such an extent that the combined mileage is increasing every year. There are more people living remote from railroad or water points to-day in the West than at any time in the sixties, and the number is gradually increasing. The business done at some railroad points is larger than before the advent of the trans-rocky mountain lines.

Railways Create Stage Lines.

Take the Union Pacific railroad guide for authority. There you will find several pages devoted to stage connections with nearly all the stations of that system from the center of Nebraska to Portland, Ore. Add the total mileage given in that guide and you have a total exceeding the length of the railroad. Some of these connecting stage lines in Wyoming, Idaho, Oregon and Washington are from 100 to 300 miles long. Even northwestern Colorado, a re-

gion as large as Indiana, has to be reached by stages from various points of the Union Pacific in Wyoming. The same stage connection at nearly all railroad points in Montana and other western states can be seen from the guides of the Great Northern, Northern Pacific, Central Pacific and Southern Pacific roads. The Santa Fe, running from Chicago to California points, has stage connections at every town from western Kansas to Mohave station, Cal. It can be demonstrated that the mileage of staging lines which has resulted from the construction of this road exceeds the total mileage of the main line. This applies to all other trans-mountain systems.

Branch Railways Widen the Field.

The automobile inventor must not fear that the construction of branches from these main lines, which under the present western industrial activity are now being pushed to new mining camps, will cover the field fully. These branch railroads will have the same tendency to create a demand for more new stage routes that the main lines had. As an illustration, there is the Rand mining camp, in the Mohave desert, which was reached from the Santa Fe railroad by stage, and this camp and stage line would never have existed without first the construction of the railroad. Two years ago a branch railroad was extended to Randsburg along the stage route. It simply killed thirty miles of staging business, but at the same time this extension made it possible for miners to push on further into the desert and establish other mining camps, necessitating 210 miles of new stage and freight roads. Of these newly created roads, that to the Panamint country, seventy miles long, is now in danger of being replaced by a railroad. But this would only result in causing seven new roads to be established to other mining camps from forty to one hundred miles in regions known to be rich in minerals but now too remote from railroads to develop. At least four hundred miles of new staging and freighting business would be created by the loss to the railroad of the seventy miles of Panamint wagon road. And the opening of these seven mining regions would multiply other districts. For many years to come railroad construction in the West will have the same effect on the non-rail transportation business that the introduction of labor-saving machinery has had in the supply and demand of labor. Where two men are displaced by a new invention, a new industry is created for the employment of three men.

Mining Camps Usually Isolated.

The fact must be taken into consideration, too, that there are no mining camps on the line of any railroad. As the valuable mineral deposits are due, primarily, to the same cause which uplifted the mountain ranges, or, in other words, both the mountains and minerals in place are the result of the same geological disturbances, the important mining districts, consequently, are in the mountains or in hilly regions. Main railroad lines keep to the valleys. This accounts for the disappointment of the tourist who makes a grand tour of the West and returns home without seeing a mine, unless he "branches off." He will, perhaps, pass mining towns; that is, the nearest town to a mining region, which may be twenty or fifty miles off. Leadville is about the sole exception to this rule. Mining camps are either reached by branch lines or by wagon roads, mostly the latter. Unusually a purely gold camp does not produce enough shipping ores or other freight business to justify a railroad branch. Cripple Creek is one of the few exceptions. Usually the gold-bearing ores are treated at the mine by milling, and only the bullion or concentrates need be shipped, and this does not make a large tonnage. With copper and silver lead districts, like Butte, Coeur de Alene, Leadville, Aspen, Globe, Jerome, Bisbee, Clifton, Trail and Slocan, great producing districts in ores for shipment to distant smelters, or in copper matte from the mine smelters branch roads are almost indispensable. With the exception of the Homestake mines in Dakota and those of Cripple Creek all the great gold producers of North America have no railroads. Even the great Batopolis silver mines of the late "Boss" Shepherd in Mexico are a hundred miles from the railroad. So the opening up of new min-

ing camps does not necessarily mean a new railroad into it, but it surely opens up a new field for the introduction of the automobile for transportation of passengers to and from railroad points, freighting to the camp of supplies and ores from the mines for shipment by rail to smelting points.

The existing field in mining and ranching in the West is alone large enough to justify development of the horseless wagon and its manufacture on a large scale.

The existing field now occupied by the horse wagon, feed being high, necessarily makes freighting by wagon and staging come high. Passenger rates usually are 10 cents a mile. With the item of feed eliminated it would be possible to reduce present passenger and freight rates and make large profits with the automobile.

The Desert Automobile.

But the field in sight is nothing compared to the business that would be developed in the arid regions by the introduction of a "desert" motorcycle. Except in a few places of easy access or where unusually large and very rich bodies of ores have been discovered, the extensive territory known as the "Great Basin" and the arid plateau regions of Arizona, New Mexico, Utah and a few other western states have not been prospected. Adventurous miners, however, will make excursions into many of these waterless regions with success as far as discovering important mineral districts, which they usually locate, but must immediately abandon for want of water to develop them. If they induce a representative of capital to make long trips through the desert to inspect them and he finds the district as rich as represented, he turns it down on account of the impracticability of operating mines which cannot be reached with supplies except by crossing from fifty to 100 miles of desert plains. Some of the new districts now opened up in the Mohave desert by the new Randsburg railroad were known to exist thirty years ago.

The Water Supply.

There are even patented mineral claims in the Death valley regions dating back to the '60s, great ledges of gold-bearing quartz which cannot now be reached except by crossing 140 miles of desert, with but one spring of potable water on the line. But in the Great Basin and in the arid regions of Arizona there are regions as large as the New England states, exclusive of Maine, which have never been penetrated by prospectors on account of the absence of water, at least on the surface, for experiment has shown that water can be found by boring a few hundred feet. Even in Death valley water is found at the least depth of any, water, which, if distilled, would be suitable for all purposes. But no one can afford to bore a chain of wells into a desert region to enable him to ascertain whether there exists mineral districts of great importance. The mineral must be discovered first to justify the development of water later on. And the poor prospector cannot take into remote regions a supply of water and food to last long enough to explore the country. He cannot take a horse for the want of feed and water. The best he can do is to take a train of burros, but its carrying capacity is not sufficient to enable him to explore more than a few miles from a water hole. It has been suggested that the national government, through the geological survey, locate and bore a chain of wells through the desert regions. All this land belongs to the government, and an appropriation for this improvement would be constitutional. But as congress has persistently refused to improve its arid lands suitable for agricultural purposes, it is only the dreamer who entertains a belief in the possibility of government aid for wells in the desert. The most that could be expected from congress would be the transfer of those desert regions to their respective states or territories, with a proviso that wells be bored on plans submitted by the United States geological survey, and that all mineral lands contained in such defined areas be leased out in small blocks to companies and the royalties applied to paying for the development of water. But there is no organized movement in this direction and it will not be done.

Long Hauls Required.

It is apparent that the horseless wagon must solve the problem. A vehicle that

will require no vegetable feed or water to propel—a "desert" automobile, one that must have a long haul capacity, able to trail a large water tank. Water in the desert is 90 per cent of a man's life. In summer in that dry climate from two to four gallons of water will be consumed by a man in twenty-four hours if he can afford it. In those desert regions are water holes and seldom must one go more than forty miles to find one. But forty miles is a "long way between drinks." Then the fear of missing the known water holes is of itself a nightmare. Trails soon disappear and all hills look alike when they are bare of vegetation. Often mirages deceive the man of the desert. Timber is too scarce to set up a line of posts for landmarks. Then nine times out of ten these water holes contain saline water unfit even for burros.

The desert automobile would overcome all these difficulties. For an illustration take the region in Arizona between Yuma and the Needles in the Colorado desert. It is generally known that in the chain of low hills of the desert east of the Colorado river forty to sixty miles off near the thirty-fourth parallel are great copper deposits, and in a northwesterly direction a few miles farther gold-bearing districts. During rainy seasons some years it is possible to go there in the month of June, but then it is very hot, and these districts have been more or less visited and favorable reports made, but no sooner has a party reached the mineral belts than a retreat must be made for fear of the evaporation of the water pools on the route back to the river. The Colorado river is navigable between the Needles and Yuma for nine months in the year with certain kinds of boats. Automobiles with a supply of gasolene could be taken from the Needles down the current in steam or flat boats to a suitable outfitting point on the river. Here a depot of gasolene could be fixed.

Transportation by Team Impossible.

There is timber along the river, and as the trail making proceeded posts could be set up along the line for landmarks; water and gasolene stations established between the water holes, and distributing plants set up at these natural water supplies. A chain of water supply would then soon connect the river with the objective mining camp, after which well boring machines could be transported and later mining machinery for the development of the mines. The development of a big copper mine always justifies a railroad, as is exemplified by the roads to Jerome, Bisbee, Clifton and Globe, all in Arizona. And a railroad to such points would enable the country for many miles around to be exploited for minerals. If high grade gold ore was found it could be hauled to the river with the horseless wagons, or it could be milled at the mines if of a milling character and recovered by amalgamation, lixiviation or concentration if low grade. This would require power for crushing, of course, but the cheap fuel could be obtained from creosote brush brought in from the lower valleys and from gasolene brought in from the river. The oil fields in southern California are so extensive that the crude product is used for fuel in the steam stamp mills in the Mohave desert located near railroads. Gasolene could be had very cheap along all railroad points. Besides, it is known that there is an oil belt in this very Colorado desert, and a coal belt thirty miles to the east of the river. The main obstacle to overcome is water supply. Transportation of water without consuming any of it for locomotion. Transportation by team is impossible. For every pound of freight taken three pounds of water must be carried also for the horses.

Roads Not Steep.

The feasibility of traveling with a horseless wagon in the arid region need not cause any apprehension. There are no high, rugged mountain chains to cross. With the exception of spurs projecting from the Sierra Nevadas, the mining districts are mostly in low hills, the valleys between covered with a gravelly wash, but compact and hard as a macadamized road. Except for here and there cutting down a cactus or creosote brush it is possible to drive all over with a wagon without making trails. Creosote brush and roots make excellent steam fuel and grow extensively in the desert. The

borax works in the Mohave desert are operated with this root for steam fuel and so are many stamp mills. But on account of the cost of keeping horses in the desert the gathering of this fuel is expensive, especially after the immediate supply is exhausted and some miles must be gone for more. With a non-water consuming motor trailing a brush wagon this fuel could be laid down at the mines cheap enough to operate milling plants. Even now there are hundreds of gold-milling propositions idle in the desert, where water facilities are ample and only twenty or thirty miles from a railroad all on account of a want of cheap power. Many of them could be supplied with fuel either by using autocarts to gather creosote brush or by hauling gasolene from the nearest railroad stations.

The Possibilities Immense.

The possibilities for the desert horseless wagon can be realized only when one considers that the Great basin regions alone comprise an area equal to that of the combined states of Indiana, Kentucky, Ohio, Pennsylvania, West Virginia, Delaware and New Jersey and extend from the interior of Oregon to within a few miles of the Gulf of California, near Yuma; as long as from Chicago to New York city; as broad through the center as from Lake Michigan to the Tennessee state line, and the whole of it is in the great mineral zone of the Cordilleras, a network of mineral belts, some of which, like the Comstock, the Eureka, Tintic and other districts, have been, and are still known the world over. But only in gold and silver has this region made any reputation, although the possibilities for copper and lead production are of more consequence than the two precious metals. Four fortunes alone have been made in the Great basin in the borax "marshes," residuum of evaporated lakes, a borate which is gathered with common road scrapers and yields 50 per cent borax. Colman, famed as the leader of the California vigilantes, made his great fortune not in gold, but in borax, hauling this deposit 140 miles out of Death valley, and the present borax trust is deriving a large part of its product from a borate of lime formerly owned by Colman, which is mined and reduced near Daggett, in the Mohave desert. From Daggett carloads of boracic acid are shipped out. Death valley alone, untouched, has enough borax deposits to supply the world for hundreds of years to come. Soda lakes, evaporated, are numerous, and several fortunes have been made on Owens lake, in that country, evaporating the water of that body for sodium.

In that part of the basin lying in Oregon are large lakes containing the highest percentage of sodium known in the world, but far off in the desert. Fire clays, pottery clays, so-called onyx, and the fine building stones and other non-metalliferous minerals are known to exist in great bodies. And this is only descriptive of the Great basin, the region without an ocean outlet, an old land-locked sea, evaporated, except a few lakes ranging from an acre to the Great Salt Lake, but contiguous areas in Southern Utah, California, in Arizona and New Mexico comprise a territory almost as large and while not so destitute of water, contain regions as near deserts as one could classify. And what is said of the mineral resources of the Great basin can also be applied to the other arid regions, but with more force.

Rubber Tires Impracticable.

The inventor should bear these points in mind. No rubber tires would stand the desert or mountain roads. The wheel must be metallic, with grip-like rims, like a traction engine used on farms. In new regions the motive power must be gasolene, as oil fields are sufficiently developed in all sections of the West to supply every railroad station with gasolene or other oil products cheaply. They must be strong enough to haul a ton, the more the better. Wagons intended for use between railroad points and well-established centers having a fuel within reach and water developed might use steam traction motors. In the older camps outside of the desert regions, in Montana, Colorado and along the lines of railroads in other states where they all have electric plants in towns or mines, the electric motor could be used. Every town of 2,000 people in the West has an electric plant. These and the

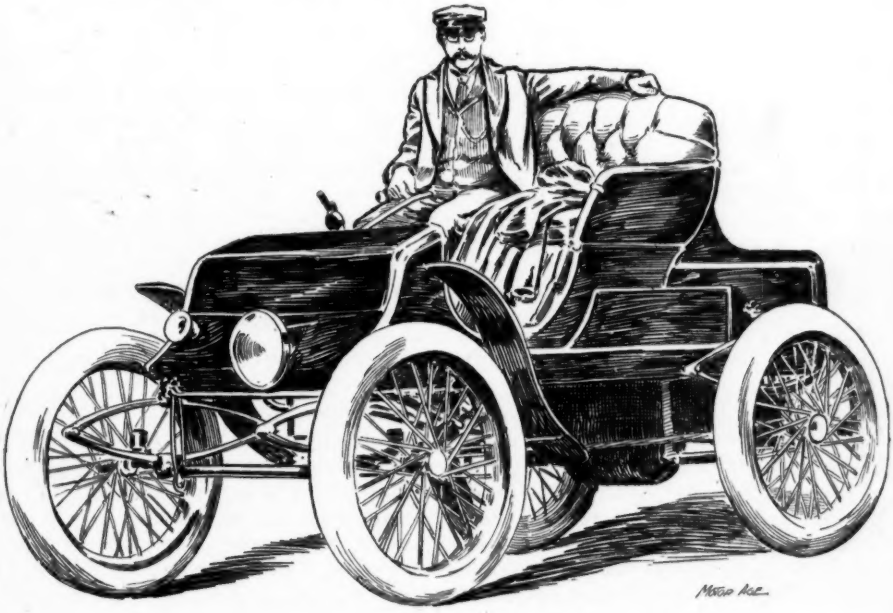
plants at the mines could be used to recharge the batteries. But gasolene would give more universal satisfaction until the country was more developed.

A Recent Demonstration.

The feasibility of using the horseless wagon on mountain roads has lately been satisfactorily demonstrated in Colorado, where an autocart, made in Denver, was taken to Cripple Creek, going over the Cheyenne pass, between Colorado Springs and Cripple Creek, and reaching its destination without an accident. The road from Colorado Springs to Cripple Creek is thirty miles long, and is practically a steady climb of the divide for one-third of the way up and a long descent the other two-thirds of the way. The road skirts along precipices and canons and has steep grades. The stage coach requires six horses and makes the trip in eight hours. This gasolene autocart made the trip in four hours, never stalled on the heavy grades, and was easily controlled going down the other side. The motorman had never been over that road before. The danger of accident along precipitious places, such as frightened or stumbling horses, or harness breaking was entirely removed by the use of this horseless carriage. And yet this was the first wagon constructed by its designer.

There is not only a great field for the horseless carriage in the West, but the horseless carriage will open up great fields for mining enterprises and other industries incident thereto.

FIRST AMERICAN RACING VEHICLE



ALEXANDER WINTON'S 15 H. P. RACING VEHICLE

Built for the projected race with Charron. Builder now challenges all comers to race against it.

WOODS MOTOR VEHICLE COMPANY

The largest deal in the motor vehicle world which has been consummated lately took final shape last week.

Several months ago the Woods Motor Vehicle Company was incorporated with a capitalization of $10,000,000 under New Jersey laws, and it was for some time commonly supposed that the incorporation meant the absorption of the Fischer Equipment Company of Chicago, of which C. E. Woods was the organizer and manager, into that happy family of electric companies which is generally known as the storage battery trust. Later developments proved that Mr. Woods and his associates had more ambitious plans, and the details of the deal as now finally given to the public reveal a full-fledged business organization with splendid financial resources and resolved to transact business as a competitor with the Philadelphia Storage Battery Company, the Electric Vehicle Company of New York, the Columbia Electric & Vehicle Company of Hartford & New Haven, the Columbia Automobile Company and the 25 local vehicle and transportation companies tributary to these.

The attorneys of the Woods Motor Vehicle Company state that the stock, $10,000,000, is all subscribed and that none will be offered to the public, and the newly elected president Frederic Nicholls, president of the Canadian Northern Railway Company and vice-president of the Canadian General Electric Company, adds hereto that the capitalization will all be real capital and will be invested in a number of manufacturing plants by which it is hoped to bring the capacity up to 100 vehicles per day.

ONE OF THE WOODS ELECTRIC CARRIAGES.

At 300 working days and an average price of $1,500 per vehicle this would bring the selling value of the company's annual production up to the astonishing figure of $45,000,000.

The board of directors is composed of some of the most prominent men in this country and Canada. The list is as follows: John W. Mackay, president Com-

mercial Cable company, New York; August Belmont, banker, New York; Dr. W. Seward Webb, president Wagner Palace Car company, New York; Charles

Woods Express Wagon.

Miller, Standard Oil company, New York; Senator George A. Cox, president Canadian Bank of Commerce, Toronto; J. Wesley Allison, United States representative Canadian government railway system and Wagner Palace Car company, New York; Sir William C. Van Horne, chairman board of directors Canadian Pacific railway system, Toronto; W. D. Matthews, director Canadian Pacific railway, Toronto; H. P. Dwight, president Great Northwestern Telegraph company, Toronto; A. E. Ames, vice-president Imperial Life Insurance company, Toronto; J. W. Flavelle, president National Trust company, Toronto; Frederic Nicholls, president Canadian Northern railway and vice-president Canadian General Electric company, Toronto; H. A. Ware, vice-president Northwestern National bank, Chicago; C. E. Woods, general manager Woods Motor Vehicle company, Chicago; Benjamin V. Becker, Newman, Northrop, Levinson & Becker, attorneys, Chicago.

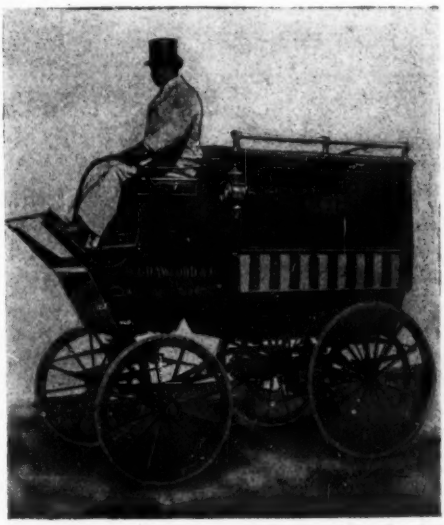
The officers of the concern are: Frederic Nicholls, president; J. Wesley Allison and A. E. Ames, vice-presidents; C. E. Woods, general manager; A. E. Chandler, secretary, and G. H. Atkin, treasurer. Mr. Chandler is a son of the president of the Postal Telegraph Cable company.

The new corporation has acquired the plant of the Fischer Equipment Company at 110 East Twentieth street, Chicago, where the Woods vehicles have heretofore been made, and has leased a six-story building at 547 Wabash avenue which is being equipped with machinery. The capacity of these two plants is estimated at 125 vehicles per month. It is stated that about 400 men will be employed in them and it is also stated that the company makes all of the parts of the vehicles except tires, from which combined statements the public may infer that it takes 100 men to produce one electric vehicle in a day from raw material.

President Nicholls is quoted as follows in regard to the company's plans:

"As soon as possible we shall build a large factory in Chicago, though we have not had any plans drawn nor looked at a site as yet. There will also be a factory in the east and one in Canada. The Canadian duty of 30 per cent. on vehicles of this kind makes it necessary for us to have a plant there.

"It may be said that the scheme of the corporation came from the Canadians, and when it was determined to enter the electric vehicle-making business we looked about for



Woods Delivery Wagon.

the best type of conveyance. We contemplate establishing cab, 'bus and general transportation lines in many cities, though how soon this part of the work will begin I cannot say. We have agencies in Paris, Ant-

werp, Honolulu and many other places. We have shipped vehicles to Europe and are now making forty conveyances for Honolulu. They are very much like a surrey, being open and having a canopy top. They were built to suit the demands of the climate.

"Chicago will, I suppose, be considered the headquarters of the corporation, and we enter the industry in the belief that it is destined to grow more and more rapidly every year. It is already represented by a great deal of capital, but it has only seen its beginning."

The success of Mr. Woods in piloting his original venture onward to the magnitude indicated by the above roster of names interested in his concern, seems to have been chiefly due to his special qualifications for turning out marketable vehicles. Being the son of a practical carriage builder and brought up to this trade, he subsequently entered the electrical field and graduated as electrical engineer. His intimate acquaintance with carriage styles and the appreciation of the importance of complying with fashion's requirements in carriage work, steered him clear of all oddity in design of electric carriages. He began early to adapt electric traction to a large variety of carriage styles, always keeping in view that the general appearance of the new vehicles should be as close as possible to the styles in horse drawn carriages with which the public are familiar, and that the equipment should be in no way inferior in elegance or durability. By working on those lines and neglecting no opportunity to bring the great variety of his vehicles to the attention of the class which buys expensive carriages—to whom he specially caters—he has managed to occupy the prominent position which made the Fischer Equipment Company the logical nucleus for a new capitalistic organization to compete with all those affiliated companies that use the Philadelphia storage battery.

The batteries used in Woods carriages have so far as known been identical with the Plante batteries made by Sipe & Sigler of Cleveland.

Besides the luxury equipages, which have formed the Woods company's specialty, it has also turned out express and delivery wagons, two styles of which are shown in the accompanying engravings.

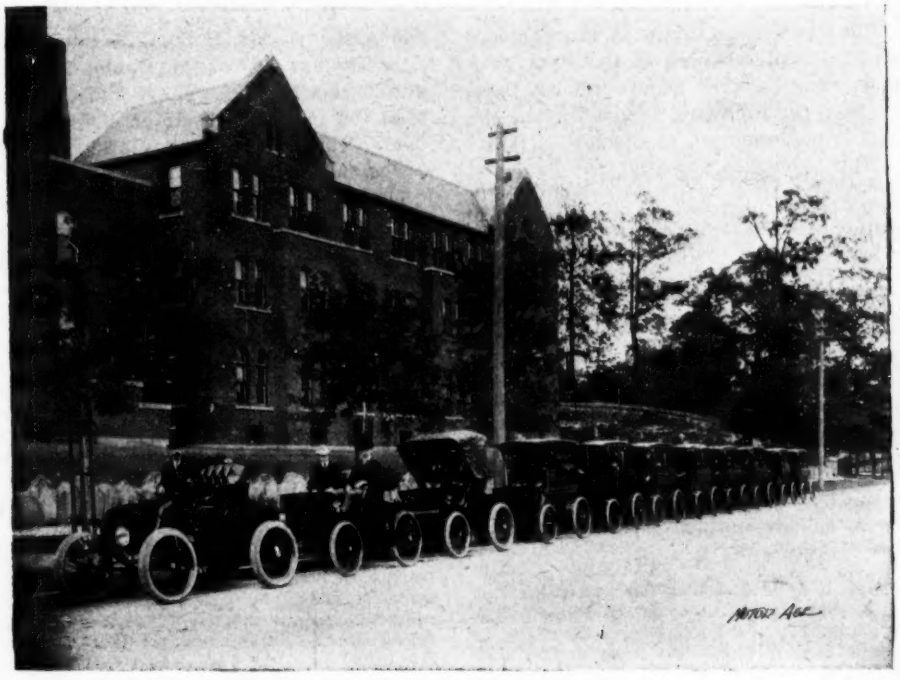
ROW OF WINTON VEHICLES

The horseless vehicles shown herewith are the product of the Winton Motor Carriage Company of Cleveland. The first machine in the area of carriages depicted represents probably the first automobile built exclusively for racing purposes in this country. It was designed by Mr. Winton especially for his much talked about race with Charron, and since the failure to complete satisfactory arrangements for this event, the Clevelander has announced that he is prepared to meet all comers for any distance. Compared with the standard Winton carriage, which is the second machine in line, the racer is a veritable monster. In can develop about 15 H. P. and it is geared to about 45 miles an hour, which speed Mr. Winton claims it can maintain for hours at a time. The carriage is equipped for night work with an electric head light operated by a dynamo. It has five-inch pneumatic tires and weighs an even ton. The third carriage in line is interesting in that it is No. 1 of the Winton product, being built over two years ago. With this machine Mr. Winton has covered over 15,000 miles, including two trips to New York, the second being the widely heralded ride which was made in less than four days, including a serious accident, or to be explicit, 47 hours actual running time.

The seven machines in the rear of the line are built for advertising purposes to the order of a patent medicine concern and are to visit all the leading cities and towns in the country, scattering circulars

and delivering the remedies of the concern. They are the first completed of a large order which will take many months to fill.

The Winton company has more than a hundred of its vehicles in operation in all parts of the country and despite the fact that it is turning them out at the rate of four a week, it is far behind on orders.



WINTON CARRIAGES AND ADVERTISING WAGONS.

NEW ELECTRIC VEHICLES

The General Electric Automobile Company of 408 Bourse Building, Philadelphia, have published an illustrated descriptive catalogue. The company has an exhibit at the Philadelphia Export Exposition and has under construction new styles of electric broughams, light and heavy delivery wagons, trucks and light pleasure vehicles.

PRICES OF ELECTRIC MOTORS

At a meeting in Chicago on September 20 manufacturers of electric motors formed a temporary organization, J. Gilbert Hickcox of the Cutler-Hammer Manufacturing Company of Chicago being elected chairman. The object of the new association is to maintain prices in the trade. The cost of raw materials, iron, steel, copper, and other materials, has advanced twenty-five to fifty per cent within the last few months, and it is the desire of the electric motor manufacturers to effect a corresponding increase in the price of the finished article. About forty manufacturing firms from all parts of the United States were represented.

THE DAVISES STILL REPAIRING

Toledo, Sept. 30.—The trans-continental automobile trip of Mr. and Mrs. John Davis has not proven a great success up to date. For nearly a month the Davises have been trying to get out of Toledo, but without success. Repair work on their machine kept them here for three weeks. A week ago Sunday they broke away from the city, but their tour was short-lived for in Michigan, less than a score of miles from here, they broke down again and are stalled. The automobilists were to represent a newspaper syndicate.

ELECTRIC VEHICLE COMPANY'S REPORT

PRESIDENT RICE DECLARES BIG DIVIDENDS AND REPORTS ON THE RELATIONS BETWEEN THE VARIOUS ELECTRIC COMPANIES.

Electric Vehicle Company stockholders met on September 19 at the New York offices and received from President Isaac L. Rice the following report for the period from January 1 to August 31, 1899:

Semi-Annual Finances.

From patent licenses	$155,000
Sale of vehicles	412,143
Other sources	6,388
Total gross earnings	$573,541
Legal expenses	$ 9,258
Taxes	8,704
General expenses	17,600
Contingent expenses	4,722
Total expenses	$40,284
Net earnings	$533,247
Dividends	324,800
Undivided profits	$208,447
Profit on investments per market value September 1	1,028,000
Total undivided profits	$1,236,447

The treasury resources of the company, as of September 1, show:

Cash	$1,575,185
Securities (market value)	2,268,000
Other securities (appraised value)	2,027,961
Sundry debtors	32,581
Bills receivable	158,000
Vehicles under construction and materials, less accounts payable	55,573
Total treasury resources	$6,117,290

Cost of the Vehicles Sold.

The stock of the company rose to par on the publication of this remarkable report; from which it would appear that the vehicles which were sold for $412,143 did not cost the company anything worth mentioning. Presumably the cost of the vehicles will appear in the report of one of the affiliated manufacturing companies in due time, but it seems odd that the bills for these vehicles have not been rendered and that the cost of production does not figure somewhere in the above report.

The following were elected directors for the ensuing year: Isaac L. Rice, Martin Maloney, Robert McA. Lloyd, John Jacob Astor, George H. Day, Arthur Phillips, Thomas J. Reagan, Daniel H. Shea and Joseph M. Hill. The five last named take the places of Rudolph Kissel, Talbot J. Taylor, Frederick Vieweg, W. W. Gibbs and Sigmund Lehman.

The report gives the most complete and clear exposition of the relations between the affiliated companies which has yet been placed before the public and is therefore of general interest. It is worded substantially as follows:

Relations Between the Companies.

The immense demand for automobiles which has arisen during the past fiscal year made it necessary to organize the business of the company on a large scale, substantially as follows: The first step in this organization was the union of patents owned by the Pope Manufacturing Co. for the construction of automobiles, and of those owned by the Electric Storage Battery Co. for the manufacture of storage batteries as far as applicable to automobiles. This was brought about by the organization of the Columbia Automobile Co., in which the Pope Mfg. Co. and the Electric Storage Battery Co. became half owners, respectively. The Columbia Automobile Co. then in its turn united all the patents owned by it with those owned by the Electric Vehicle Co., through the instrumentality of a new corporation entitled the "Columbia and Electric Vehicle Co.," reserving only its right to the manufacture of storage batteries, agreeing, however, to furnish these batteries as required by the Columbia and Electric Vehicle Co. at a price fixed at 20 per cent. above the actual cost of production. The stock of the Columbia and Electric Vehicle Co. was taken in equal proportion by the Electric Vehicle Co. and the Columbia Automobile Co., respectively. The Columbia and Electric Vehicle Co. acquired immediately, by purchase, the extensive plant of the Columbia Automobile Co. at Hartford and shortly thereafter purchased the entire capital stock of the New Haven Carriage Co. and thus acquired control of that company's important plant at New Haven. About the same time the Electric Vehicle Co. purchased substantially the entire capital stock of the Siemens & Halske Electric Co. of America, for the purpose of utilizing the great facilities in Chicago of that concern for the manufacture of the electric equipment other than storage batteries re-

quired for the construction of electric vehicles.

By means of this manufacturing organization the Columbia and Electric Vehicle Co. is in a position to furnish during the coming year an output of at least 8,000 automobiles, representing at present prices a gross business of about $20,000,000. The exclusive right to purchase the entire output of the Columbia and Electric Vehicle Co. is assured by contract to the Electric Vehicle Co., which thus becomes the sole agency for its disposal.

In order to find a regular market for the product of the Columbia and Electric Vehicle Co. the Electric Vehicle Co. has adopted the policy of organizing transportation companies throughout the Union, each vested with the exclusive right to purchase for operation and sale within its territory the product controlled by the Electric Vehicle Co. At present four of such companies have been placed on a business footing. These are the New York, the New England and the Illinois Electric Vehicle Transportation companies, each with an authorized capital of $25,000,000, all of which has been subscribed for. In addition to these, the company made an arrangement substantially similar with the Pennsylvania Electric Vehicle Co., which had been previously organized, and subsequent to its organization acquired its rights from the Electric Vehicle Co. The Pennsylvania company was capitalized as follows: Two million dollars preferred stock, $4,000,000 common stock. The preferred stock, of which 20 per cent. has been called, is payable in cash; the common stock was issued full paid for patents and rights.

The New York, New England and Pennsylvania companies were pioneer organizations antedating the Columbia and Electric Vehicle Co. They paid into the treasury of the Electric Vehicle Co. the sums of $80,000, $25,000 and $50,000, respectively, for the privileges conferred. The Illinois Vehicle Co., for these same privileges, has paid 20 per cent. of its full paid capital stock, one-half of which has gone into the treasury of the Electric Vehicle Co. and the other half into the treasury of the Columbia Automobile Co. All future companies organized for a similar purpose will be required to make similar payments for the privileges to be conferred. It may be noted that the entire capital stock of the transportation companies, with the exceptions stated, was subscribed for at par for cash without intervention of any underwriting syndicate, so that the respective companies received the full amount of the subscriptions without deduction for commissions or bonus of any description. The New York and New England companies have called 10 per cent. on the subscription. The Illinois company has called 5 per cent. and is about to call 5 per cent. additional. The large sum of $7,400,000 in cash is thus immediately available for the purchase and operation of the product controlled by the Electric Vehicle Co., while the total amount of $72,000,000 will become available as required. The request for the organization of further transportation companies throughout the Union is continually growing, and it is expected that within a comparatively short time every state will be supplied with such a company.

By its half ownership of the stock of the Columbia and Electric Vehicle Co. the Electric Vehicle Co. becomes entitled to one-half of the profits of manufacture, which in all cases are fixed at 20 per cent. above cost, making the profit accruing to the Electric Vehicle Co. 10 per cent. on the entire product.

As a special consideration for privileges conferred by the Electric Vehicle Co., each of the transportation companies organized or to be hereafter organized is obliged to pay to the Electric Vehicle Co. 2½ per cent. of its gross earnings of operation and 10 per cent. as a commission on all sales of vehicles not operated by the transportation companies.

The ownership of the Siemens & Halske Co. enables the Electric Vehicle Co. not only to obtain the profits arising from the general business of that company, but in particular to secure a manufacturing profit on all electrical equipments required in the construction and operation of electric vehicles manufactured by the Columbia and Electric Vehicle Co.

In order to bring about the manufacturing organization above described large sums of money were necessary. The company therefore sold at par for cash the preferred stock remaining in its treasury unissued at the beginning of the fiscal year; 19,400 shares were purchased by the Storage Battery Co. and 20,000 shares by a syndicate. No commissions or deductions of any nature were allowed in these transactions, which, at the time, corresponded substantially with the market price of that portion of the stock which had been issued. At the same time the common stock of the company was increased by 20,000 shares, which were issued full paid to the Electric Storage Battery Co. in exchange for valuable rights granted by that company. Of the amount realized about $1,000,000 was paid for the stock of the Siemens & Halske Electric Co. and the furnishing of the working capital necessary to put that company on its present basis; $600,000 was paid for 6,000 shares of the Columbia and Electric Vehicle Co., being half of the stock thus far issued, and $1,240,000 was invested in the stock of the transportation companies, as above stated.

The company is entirely free from bonded or floating debt.

IMPRESSIONS FROM EASTERN STATES

CONTINUATION OF ARTICLES "FROM NEW ENGLAND AND NEW YORK" IN PREVIOUS ISSUES. —FINANCIAL QUESTIONS OBSCURING MANUFACTURE IN NEW YORK.—THE ACQUISITION OF FOREIGN PATENTS.—SPECIAL AMERICAN REQUIREMENTS.—NEW HAVEN AND BRIDGEPORT WORKERS.

The less there is said about the motor vehicle companies doing business from New York City as a center the more the public will know. It is a case where no knowledge is better than the information offered to inquirers at the present stage of development.

Exceptions from the Rule.

The exceptions to this rule may be counted on the fingers of one hand. The plan and construction upon which J. W. Eisenhuth intends to work have already been the subject of mention in previous articles. The electric vehicles manufactured by the Riker company have been illustrated and described from time to time. They are admitted to be among the best specimens of electrical carriage work and have found liberal recognition at home as well as abroad. The Riker works are now established on a large scale in Elizabeth, N. J. The Hasbrouck Motor Company of 68 Broad street, may appear shortly as a factor in the motor vehicle market, but has until lately been making motors mostly for launches. The National Motor Carriage Company, whose works have been moved from Springfield, Mass., to Stamford, Conn., has made and sold between twenty and thirty vehicles, constructed according to the early Duryea patents, but its intentions for the future are uncertain, the company having been identified in the recent past with efforts for uniting various gasolene motor and motor vehicle makers under one corporation. The Electric Vehicle Company, whose semi-annual report is printed on another page, is of course transacting considerable business in the way of placing electric cabs at the disposal of branch companies, but in these endeavors the broad public who are looking for road carriages are only slightly interested.

Of all the other concerns aiming at motor vehicle manufacture which have a corporate existence in New York City or immediate vicinity nothing is to be learned which may be pronounced both reliable and interesting. With the exception of the Locomobile Company of America and the Mobile Company of America, both identified with the manufacture of Stanley steam wagons and therefore more naturally classified as New England concerns, the New York companies and individuals whose names are generally mentioned in connection with the motor vehicle industry seem to be engrossed in preliminary financial organization, while at the same time groping for suitable motor and vehicle construction. They want to form an attachment with the motor vehicle industry, but it is not at all clear to themselves how it shall be done. Some of them have vehicles to show, but these vehicles either fail to behave properly under test or the construction features seem to be somebody else's property. Under these circumstances financial organization becomes difficult.

Foreign Patents Out of Date.

In a few instances foreign patents have been acquired, such as the Krieger patents for electric cabs by the General Carriage Company, the Decauville patents, the Daimler patents by a corporation affiliated with the electric vehicle parent companies; but no tangible results are yet forthcoming from these purchases, although the Daimler works at Steinway, L. I., are said to be busy upon foreign orders. In most cases where foreign patents are to form the foundation for American business considerable difficulty may be expected from adapting the foreign construction to certain American requirements which have already become so generally recognized that it will prove impracticable to disregard them.

Among these specially American re-

quirements—now also coming to the front in European markets—the demand for positive and perfectly graduated control of vehicles by the manipulation of no more than three levers—two or one preferred—interferes seriously with most plans for transplanting European gasolene motor vehicles to this country. Variable speed gearing is positive, but fails to give intermediate speeds. Combined with gas mixture regulation it gives good results for an expert driver, but the American public will not consent to be professional chauffeurs. Driving by belt, or other friction drives, and regulating speed by the belt tension is largely favored in late French patterns of voiturettes, but still it seems to be understood that this method must be limited to very light vehicles and cannot even for these be considered the final solution. Having been taught the perfect control that is possible when the speed regulation is effected entirely through the motor mechanism proper—as in the American steam carriages—the American public will not rest contented until the gasolene motor is brought under similar, perfectly graduated control by means of a single lever regulating the fuel supply and also actuating the brake or brakes at zero position. Toward this end American inventors are working while the European inventors whose patents might be selected as the foundation for new American manufacture have all, so far as known, been content with makeshift arrangements excellent in their way but unfit in their nature for further perfectionment along the lines that would lead to completely satisfactory results in the end.

It is the growing conviction that American gasolene vehicles must be as thoroughly original in construction as are the American steam wagons.

The Eastern manufacturers who are contemplating purchase of European patents, and would fain control as many of them as possible, have perhaps underrated the commercial importance of this factor, being inclined to credit European industry with having accomplished more than it really has, and overlooking that the success in selling motor vehicles in Europe has been determined more by the sociological condition of the European countries than by the mechanical perfection of the vehicle product.

Work at New Haven.

In New Haven, Conn., the motor vehicle fever has none of the New York characteristics. It is not being assumed there that any motor vehicle will sell if only the money can be gotten together for its manufacture. Experimenters with sufficient capital to plunge into manufacture if they deemed it wise so to do, have been progressing by slow degrees trying to evolve satisfactory patterns. And much testing work has been done.

Messrs. Hay & Hotchkiss, the carriage-making firm, have completed a one-seated gasolene motor wagon, the result of Mr. Hay's studies, and have sufficient confidence in its serviceability to already announce on their sign: Fine Carriages and Motor Vehicles. It is understood that they will make preparations for motor vehicle manufacture during the coming winter.

Mr. Clapp of the Clapp Motor Vehicle Company—lately reorganized and named the Eastern Motor Vehicle Company—has made nine different motors before he arrived at a type that suited him. This last one he has incorporated in a two-seated, 12 H. P. vehicle weighing 1,600 lbs., with everything on. Unlike most other gasolene vehicles of American make this carriage may be started from the seat. The ignition is by dynamo and spark coil. Mr. Clapp is one of the pioneer motor vehicle constructors in the whole country, being the patentee of the first inventions from which the Duryea style of vehicles was developed. He disposed of these patents to the Duryeas.

The Dennison Electric and Engineering Company of New Haven is busy making the Yale gasolene motor for yachts. Their connection with the Dennison Motor Vehicle Company of New York and the Tinkham Company of Syracuse has apparently been severed, but it is understood that negotiations are under way with other New York parties for having the Yale motor applied to tricycles on a commercial scale.

In Bridgeport, Conn., Henry A. House, whose son is prominently engaged in the

steam carriage industry in England, is the most prominent representative of motor vehicle work. He and his brother are best known as inventors of machinery for corset manufacture, but as early as 1866 Henry A. House imported a steam motor made by the Liquid Fuel and Engineering Company, and applied it to a vehicle. He was stopped by the police, and put the motor into a boat. It is the same style of motor which he has since modified for vehicle use. It is provided with a complete condensing system which would be somewhat bulky for pleasure vehicles but unobjectionable for heavy freight wagons, of which one or more are said to have been constructed. A company is now being formed for the manufacture of these, and it is said that one of the transfer companies of Chicago has ordered 100 wagons of this pattern.

AUTOMATIC BOILER FEED REGULATION

In regard to steam road wagons it may be suggested for the consideration of builders if the water feed pumps should not be regulated purposely to give an insufficient supply for any but the very lowest speeds, so as to compel the driver to supplement the automatic feed by foot action or air pressure. A water feed which is ordinarily sufficient—but which may yet give out and cause burning of the boilers—easily leads the driver to neglect watching the waterglass, while if he knows that he must always do so and that he is expected to re-enforce the feed pumps by other means of a non-automatic nature, an element of safety is introduced which can hardly be spared until the completely automatic contrivances shall have been brought to that point of perfection where they will operate with absolute reliability under all conditions.

A NEGLECTED FIELD

There are many kinds of work for which speed is the last consideration, and for which all that is required is the transportation of something from one place to another without much regard for the driver's time. For all such work a small gasolene motor may do very well even fitted to a large wagon if the high engine speed is greatly reduced by gearing. Small motors may be simple and comparatively inexpensive, and with a high speed of about 4 miles per hour to be reduced to 1 or less when required on account of grade or heavy load, most of the difficult problems in regard to construction of running gear would be removed.

For light hauling, especially in towns of second and third magnitude, there should be extensive use for this class of automobiles.

ALCOHOL VERSUS GASOLENE

The German Reichstag has had laid before it a plan to increase the import duty on petroleum and gasolene with a view to fostering the native industry of producing raw alcohol to be used instead of gasolene for driving motor vehicles and instead of petroleum for lighting purposes. The alcohol incandescent lamps are a commercial success in Germany and are largely used for illumination of railroad stations, palaces, etc.; but they are practically unknown outside of Germany. Raw alcohol has been proved available for motor vehicles, but it does not drive as strongly as gasolene. Raw alcohol can be manufactured and sold in Germany at 6½ cents per quart.

AMERICAN STEAM WAGONS PRAISED

Having seen the Whitney and the Stanley steam wagons in England, the Autocar pronounces its belated verdict to the effect that if they prove as durable as they are nice to ride in the gasolene motor vehicles are in danger of being outstripped, and that builders of steam wagons in Europe should hurry up and emulate the light American construction.

RESTRICTIONS ON STEAM IN ENGLAND

In England steam road vehicles are not allowed on the highways if there is any show of steam whatever. Legislation the stumbling block for progress, as usual. The wise legislators choke the children of progress in the cradle if they have the least blemish, although the blemish might be outgrown in time.

CALDWELL'S SPILL AT TATTERSALL'S

MOTOR VEHICLE SPORT STILL CONFINED TO MOTOR PACING ON THE RACE TRACK.—A TUMBLE THAT ILLUSTRATES THE ROAD REQUIREMENTS FOR HIGH SPEEDS.

On September 27 a twenty-mile motor paced match race between Miller and Caldwell was run under the auspices of the N. C. A. in the Tattersall building in Chicago.

CALDWELL THROWN OVER HIS PACERS.

The event was run on a 10 lap board track of very poor construction and owing to the narrow track the riders started on opposite sides.

Caldwell caught his opponent in the second mile and his pacing machine dropping in close behind Miller stayed in that position till near the end in spite of Miller's frantic efforts to get away.

After about eighteen miles had been covered a hole was discovered in the track near the finish of the upper turn and the riders were warned to go wide

at this point and later a hat was put in the hole that they might better see it, but as Miller swung into the stretch of the sixth lap of the last mile he started to sprint and in the anxiety to catch him Kramer who was steering Caldwell's tandem cut in too close and struck the hole, crushing the front wheel and bringing the machine and its riders down with a crash.

Nobody Was Hurt.

Caldwell had no time to dodge and striking the wreck was thrown clear over the tandem and riders, landing on the floor several feet from the track.

The fall was a terrific one, but no one was seriously injured, and Caldwell, mounting a near by wheel, went after Miller and finished the race but with no chance of winning.

Both pacing machines were built by the Waltham Mfg. Co.

TOURNAMENT FOR VOITURETTES

A unique automobile entertainment and contest is being organized for October 18 and 19 by the Sport Universel Illustre of Paris. It is designed to demonstrate the manageability and ease of steering of the small gasolene motor "voiturettes" which are making so much headway in the Parisian market, as against the larger carriages, since the makers learned to enclose the motor mechanism and made them look like diminutive carriages.

The programme includes a technical and a fancy display. On the first day a steering contest takes place open to one-seated voiturettes not exceeding $1,000 in catalogue price. The vehicles must be driven by ladies or children and the contest consists in avoiding a series of obstacles at a minimum speed of 7½ miles per hour. The obstacles are graded, according to the difficulty of avoiding them, certain points being allowed for each. On the same day there is to be a gymkhana or tournament open to gasolene motor tricycles, quadricycles and bicycles. The participants in this are specially invited by the management. The final feature of that day will be a competition of costumes, prizes to be given for elegance as well as for comfort.

On the second day there will be a classified race for voiturettes costing $1,000 or less, the classes being determined by the horse-power. Two H.-P., over 2 H.-P. and over 3 H.-P. are the recognized divisions.

All participants in the entertainment will receive a souvenir and all drivers that finish the second day races at an average speed of not less than 7½ miles per hour will receive a diploma. The race course will be from Paris to Rambouillet and return. For each vehicle a $10 entrance fee is charged.

Two juries composed of artists are to decide the competition for costumes, the men's costumes to be judged by women artists, and the lady costumes by men artists.

RULES FOR PARK TRAFFIC

The following traffic rules have been proposed in Philadelphia with a view to removing all objections that may exist to the opening of parks and boulevards to motor vehicles:

First—Each automobile shall have upon it a plate, plainly visible, upon which shall be stamped or engraved the number of the permit authorizing that vehicle to go into the park; the name of the vehicle's owner, and his or her address.

Second—The permit shall be in the form of the above-mentioned plate. That is, the plate itself shall constitute the permit.

Third—To obtain such permit the vehicle must be presented for examination at a place designated by the park commissioners, said examination to be made by a competent person designated by the park commissioners.

Fourth—Each vehicle shall be provided with a satisfactory set of brakes, and also appliances for overcoming or reversing the motor in times of emergency.

Fifth—When running in the park between sunset and sunrise each automobile vehicle shall be provided with two lamps, one red and the other green, the lights from which lamps shall show plainly.

Sixth—The speed shall be no greater than — miles an hour.

Seventh—Whenever, from any cause, a horse or horses approaching an automobile vehicle shall give indications of uneasiness or of becoming frightened, the driver of the automobile shall immediately stop his vehicle, and if it be other than an electric wagon, shall also stop its motor.

Eighth—The competency of an applicant for permission to drive an automobile into Fairmount park shall be determined by thorough and exhaustive tests made by an ex-

pert designated by the park commissioners. The cost of this test, as well as of the examination of the automobile and of issuing a plate to be placed thereon to be defrayed by the applicant, in the form of a fee, to be fixed by the park commissioners.

Ninth—Should an automobile vehicle be driven into the park by a visibly incompetent person, or a person to whom a license to run an automobile on the park drives has never been issued, the permit for that vehicle shall be revoked or forfeited for one year.

Tenth—Each automobile shall carry a warning signal, which shall be used whenever occasion requires.

OVERTURNED BY SPEED

C. Arthur Benjamin, general manager of the Olive Wheel Company of Syracuse and Henry L. Trebert, inventor of the back-pedaling brake bearing his name, recently had an experience with a Stanley steam "locomobile," which bespeaks caution in running a lightweight vehicle at high speed over lumpy roads. The occasion was a test trip with the vehicle between Syracuse and Auburn and return. On the return trip Mr. Benjamin decided to find out how fast the machine could run.

The carriage got a good start out of Auburn and went smoothly until near Camillus. The road in that section of the country is very bumpy but Mr. Benjamin did not mind and kept putting on more steam. Going over a large bump in the road Mr. Benjamin took one hand off the lever which steers the automobile. As he did so the front wheels struck an obstacle in the road and the machine went over on two wheels. It turned a complete somersault and landed upside down, throwing its two occupants to the side of the road. Mr. Benjamin escaped with a few scratches but Trebert was not so lucky, suffering a sprained leg.

WOODS' AMBITIOUS PLAN

A plan to make Chicago the central point of cross-country automobile runs to Milwaukee, St. Louis, Cleveland, and Indianapolis and to establish regular lines of automobiles, making schedule time over these routes, is being worked out by the Woods Motor Vehicle company. Recharging stations along the Sheridan road, which is to be the route to Milwaukee, already have been established, and a test trip to Milwaukee will be made by C. E. Woods on Oct. 7. A trip to St. Louis is planned for the following week.

The recharging stations on the route to Milwaukee are at Wilmette, North Chicago, Kenosha, and Racine.

Agents of the company have been sent along the roads to St. Louis in search of recharging sites, and work on the roads to Cleveland and Indianapolis is to begin at once. Maps, similar to the plats of bicycle routes, will be published, indicating the location and distances of recharging stations.

The company plans to have all the routes opened and in use before winter. It contemplates assigning fifty automobiles to run on schedule over the routes. —Chicago Tribune.

AUTOMOBILE BEANS

We are afraid that the newspaper and magazine editors who call everything automobile that moves without horses, whether on earth, in the seas, in the atmosphere or in spherical space, have overlooked the "automobile bean." And still it moves. Scientific American tells a story about it as follows: A few years ago public curiosity was excited by the curious beans called the "devil beans of Mexico," which shopkeepers placed in their windows. They somewhat resembled roasted coffee beans in shape and color. They were also known as the "jumping beans," owing to the fact that from time to time they made spasmodic movement.

The bean really consisted of three similar pods which formed a single bean. It is usually a third of the bean which was exhibited as a curiosity. On opening the pods it was found that it contained a small larva something like that frequently found in chestnuts. It is this little occupant which gives motion to the bean by its jerks and thumps against the side of its home. If the bean is slightly warmed, it begins to turn from side to side and perhaps, with a sudden jump, turns completely over and stands on one end, and then by successive jumps, moves quite a distance.

Those who are not in the secret are often greatly puzzled by this strange bean. An enterprising jeweler devised a scheme of utilizing them to make a magic clock. He accomplished this by imitating the shape of two of the beans, making the dummy beans out of soft iron; one he gilded and the other he silvered. The prepared iron beans were placed with the ordinary jumping beans on a thin white piece of pasteboard, outlined and numbered like the dial of a clock, but devoid of the hands. This dial was located over the works of a large clock which was placed face upward on the floor of the store window. He fastened small magnets to the ends of the hands. The works were of course carefully hidden from view. All that was in evidence was the cardboard clock dial and the jumping beans, among which were the gold and silver painted iron beans. These were placed on the cardboard over the concealed hands with the magnets attached. The magnets were moved by the hands of the clock so that they were almost in contact with the cardboard. As they moved around, they carried the iron beans with them, thus telling the time of day, and the public was greatly interested by the intelligence shown by the two beans, which distinguished them from their lively associates.

SPECIAL RACING EQUIPMENT

When motor vehicle races become established in the United States it would probably be a great source of economy to manufacturers and all participants if a rule were adopted to exclude specially-built vehicles and admit only those regularly manufactured and catalogued as adapted for ordinary road use. Special construction and equipment designed to increase speed regardless of other considerations form a heavy item of expenditure in French racing and one for which very few receive any returns. In the recent Tour de France contest, for example, the expenses for racing tires for each vehicle were estimated at from $400 to $1,250 for tires alone, or about $100 per day. Some vehicles had new tires fitted five times during the course of 1420 miles; none less than twice. For every 186 miles along the route complete shops for tire fitting were erected, also adding to the cost.

THE WISE CHINESE BUYER

It is impossible to sell anything to Chinese which they have not seen, says United States Consul-General Goodnow at Shanghai with reference to automobiles. Is this a fling at the Chinese or at ourselves?

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